Summary for Patients: PCR Testing Versus Rapid Antigen Testing at a Community Site During a COVID-19 Omicron Surge

From: Schrom J, Marquez C, Pilarowski G, et al. Comparison of SARS-CoV-2 reverse transcriptase polymerase chain reaction and BinaxNOW rapid antigen tests at a community site during an Omicron surge. A cross-sectional study. Ann Intern Med. 15 March 2022. [Epub ahead of print]. doi:10.7326/M22-0202

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What is the problem and what is known about it so far?

SARS-CoV-2 tests are an important tool to help manage the COVID-19 pandemic. Reverse transcriptase polymerase chain reaction (RT-PCR) tests are typically done in testing centers, often require scheduling, and can take days for results to be available. Rapid antigen tests that people can do at home make testing easier and enable immediate changes in behavior if the result is positive. Although rapid antigen tests are known to perform well in diagnosing infection with the Delta variant and other earlier SARS-CoV-2 variants, it is not clear how well they perform in diagnosing infection with the Omicron variant.

Why did the researchers do this particular study?

To evaluate how BinaxNOW, a commonly used rapid antigen test, compares with RT-PCR for diagnosing infection with the Omicron variant.

Who was studied?

A total of 731 people who had COVID-19 testing on 3 January, 4 January, and 9 January 2022 at a free, walk-up, outdoor, community testing and vaccine site in San Francisco, California. During this time, Omicron was the main variant causing infection in this geographic area.

How was the study done?

The researchers did both the BinaxNOW and RT-PCR test on study participants using samples from cheek and nose swabs. They then looked at how often BinaxNOW results agreed with RT-PCR results. They also compared performance of BinaxNOW using cheek and nose swabs.

What did the researchers find?

Of the 731 persons tested, 296 (40.5%) had positive results on RT-PCR. Agreement between BinaxNOW and RT-PCR was over 95% when patients had high levels of virus and over 82% with lower levels. A single BinaxNOW test that used a cheek swab did not detect 91% of specimens that were positive on BinaxNOW with a nose swab.

What were the limitations of the study?

There are many approved rapid antigen tests, but the researchers studied only one. Infection rates were very high when this study was done. Test performance might be different when infection rates are lower. Also, rapid tests were performed at a testing site by people trained to use them, and performance may be different when people use them at home.

What are the implications of the study?

BinaxNOW performs similarly to RT-PCR tests during a period of high SARS-CoV-2 infection rates with the Omicron variant, especially when RT-PCR results suggest high levels of virus. This is important because people are most likely to transmit infection to others when virus levels are high. Cheek swabs should not be used with the rapid antigen test, and throat swabs should not replace nose swabs.

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